



A.D. 1858, *24th JULY.* N° 1671.

S P E C I F I C A T I O N

OF

JULIEN FRANCOIS BELLEVILLE.
5

FURNACES.

L O N D O N :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
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1859.



A.D. 1858, 24th JULY. N° 1671.

Furnaces.

LETTERS PATENT to Julien François Belleville, of Paris, in the French Empire, Civil Engineer, for the Invention of “**AN IMPROVED SMOKE-CONSUMING APPARATUS OR FURNACE.**”

Sealed the 21st January 1859, and dated the 24th July 1858.

PROVISIONAL SPECIFICATION left by the said Julien François Belleville at the Office of the Commissioners of Patents, with his Petition, on the 24th July 1858.

I, JULIEN FRANÇOIS BELLEVILLE, of Paris, in the French Empire, Civil
5 Engineer, do hereby declare the nature of the said Invention for “**AN IMPROVED SMOKE-CONSUMING APPARATUS OR FURNACE,**” to be as follows :—

This apparatus consists of two sets of fire bars, one large set composed of louvre-like bars inclined at an angle of about 45° with a space for the admission of air between every two bars ; the other and smaller set are placed
10 horizontally at the bottom of the inclined louvre bars.

The large set of bars consists of metal laths or strips arranged stepwise over each other, so as to form a plane sufficiently inclined to allow of the fuel employed falling by gravitation. It is important that every lath or plate in the series should project as little as possible beyond that placed immediately
15 above it; and in order to facilitate the descent of the fuel, the square edges on the top surface of each plate are bevelled off. The front surfaces of the inclined louvre fire bars or grating lie in the same plane which has the degree of inclination desired. A feed hopper is fixed over the inclined grating, and should be kept supplied while the furnace is at work. Flues are made in the

Belleville's Improved Smoke-consuming Apparatus or Furnace.

brickwork of the apparatus for the admission, through regulating valves, of air, which becomes heated in its passage, and is admitted through the openings between the louvre bars and into the upper part of the apparatus to obtain as perfect combustion as may be. Between the bottom of the louvre bars or grating and the horizontal bars there is a stopper or door, through which to 5 remove any clinkers without stopping or interfering with the working of the furnace.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Julien François Belleville in the Great Seal Patent Office on the 24th January 1859. 10

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JULIEN FRANÇOIS BELLEVILLE, of Paris, in the French Empire, Civil Engineer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-fourth day of July, in the year of our Lord 15 One thousand eight hundred and fifty-eight, in the twenty-second year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Julien François Belleville, Her special licence that I, the said Julien François Belleville, my executors, administrators, and assigns, or such others as I, the said Julien François Belleville, my executors, administrators, and 20 assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “AN IMPROVED SMOKE-CONSUMING APPARATUS OR FURNACE,” upon the condition 25 (amongst others) that I, the said Julien François Belleville, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar 30 months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Julien François Belleville, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, reference being had to the Drawings hereunto annexed, that 35 is to say:—

Belleville's Improved Smoke-consuming Apparatus or Furnace.

This apparatus consists of two sets of fire-bars, one large set composed of louvre-like bars arranged so that their edges all lie in a plane inclined at an angle of about 45° , with a space for the admission of air between every two bars, the other and smaller set are placed horizontally at the bottom of the 5 inclined louvre bars.

The large set of bars consists of metal laths or strips arranged stepwise over each other, so as to form a plane sufficiently inclined to allow of the fuel employed falling by gravitation. It is important that every lath or plate in the series should project as little as possible beyond that placed immediately 10 above it; and in order to facilitate the descent of the fuel, the square edges on the top surface of each plate are bevelled off. The front surfaces of the inclined louvre fire-bars or grating lie in the same plane which has the degree of inclination desired. A feed hopper is fixed over the inclined grating, and should be kept supplied while the furnace is at work.

15 Flues are made in the brickwork of the apparatus for the admission through regulating valves of air which becomes heated in its passage and is admitted through the openings between the louvre bars, and into the upper part of the apparatus to obtain as perfect combustion as may be. Between the bottom of the louvre bars or grating, and the horizontal bars, there is a stopper or door 20 through which clinkers may be removed without stopping or interfering with the working of the furnace.

Figure 1 of the accompanying Drawings is a front elevation of a smoke-consuming apparatus or furnace constructed according to this Invention; Figure 2 is a longitudinal section of the same through the line A, B, of 25 Figure 1, and Figure 3 is a section, in plan, through the line C, D, of Figure 2. A, A¹, are the two side casings of the apparatus, supported by tie pieces *a*, *b*, and fixed to the brickwork by bolts *c*, *c*¹; B is the feed hopper placed above the larger set of fire bars C, and fixed to the side casings A, A¹, by bolts *d*, *d*¹; D, D, are side supports for the larger set of fire bars C, and are fixed to the 30 brickwork of the apparatus by bolts *e*, *e*. The bottom bar of the larger set of fire bars rests upon a bridge G in the ash-pit; E is the smaller set of fire bars, and F, F¹, are supports for the same; H is a stopper or door between the two sets of fire bars, through which clinkers can be removed without interfering with the working of the apparatus; I is the ash-pit; J is a crown 35 piece to facilitate the combustion of the fuel; K is the door of the ash-pit; L is the back of the furnace inclined at an angle of about 45° . *g*, *g*, are orifices for the admission into the apparatus of hot air from flues N and O, O, made in the brickwork of the apparatus; the quantity of air admitted from such flues being regulated by valves P, P.

Belleville's Improved Smoke-consuming Apparatus or Furnace.

And having now declared the nature of my said Invention, and in what manner the same may be performed, I declare that I claim,—

First, the construction of smoke-consuming apparatuses or furnaces with fire-bars arranged stepwise over each other so as to form an inclined plane, and thereby allow of the fuel falling by gravitation essentially as herein-before 5 described and illustrated in the accompanying Drawings.

Secondly, the construction of furnaces with a stopper or door through which clinkers can be removed without interfering with the working of the furnace, essentially as herein-before described and illustrated in the accompanying Drawings. 10

Thirdly, the construction of furnaces with flues for the admission of hot air formed and arranged essentially as herein-before described and illustrated in the accompanying Drawings.

In witness whereof, I, the said Julien Francois Belleville, have hereunto set my hand and seal, this Twentieth day of January, One thousand 15 eight hundred and fifty-nine.

J. F. BELLEVILLE. (L.S.)

Witness,

CH. ARMENGAUD,

Ing^r Civil,

Boulev^t de Strasbourg, No. 23,

à Paris.

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FIG. 1.

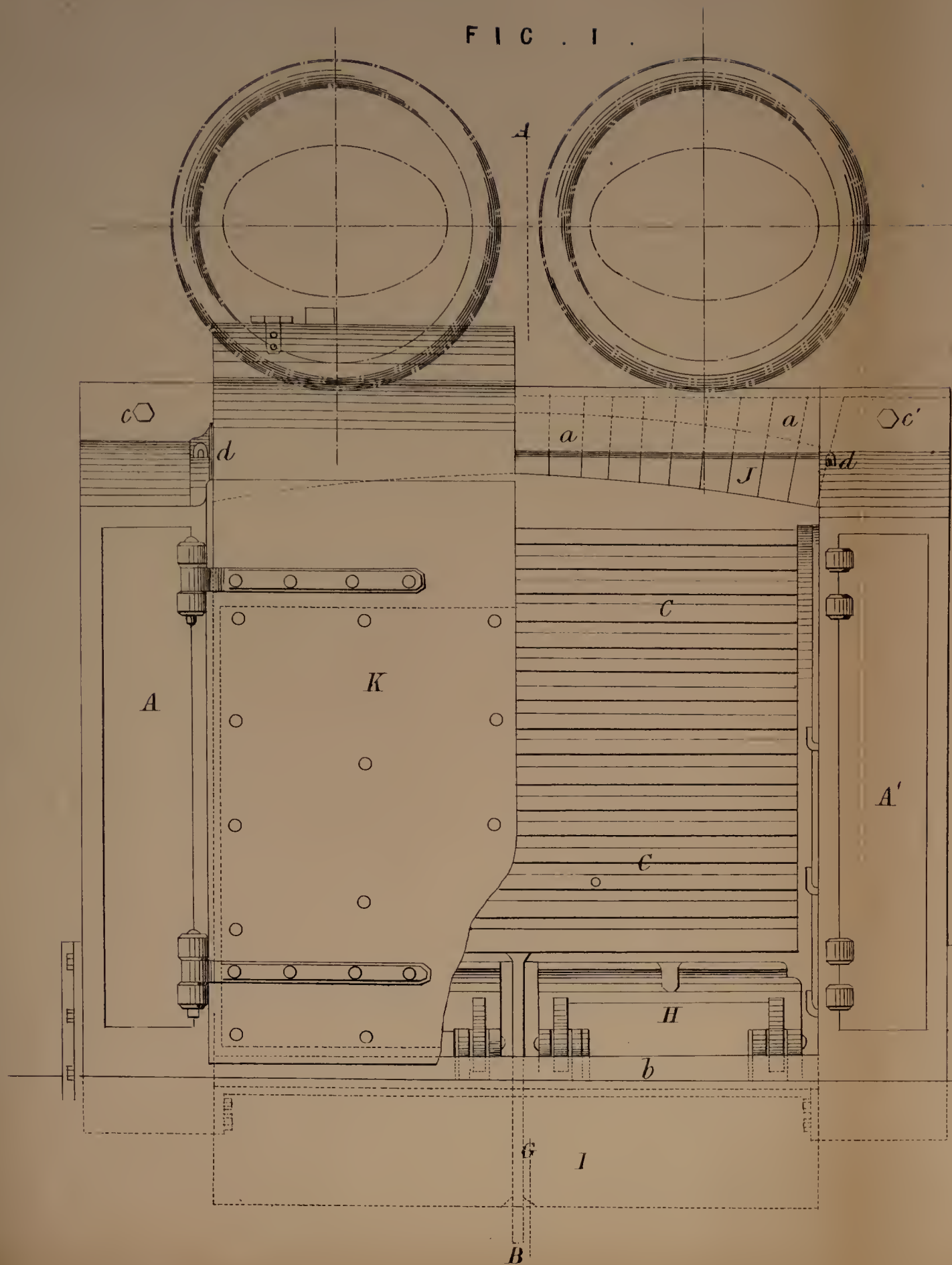


FIG. 3.

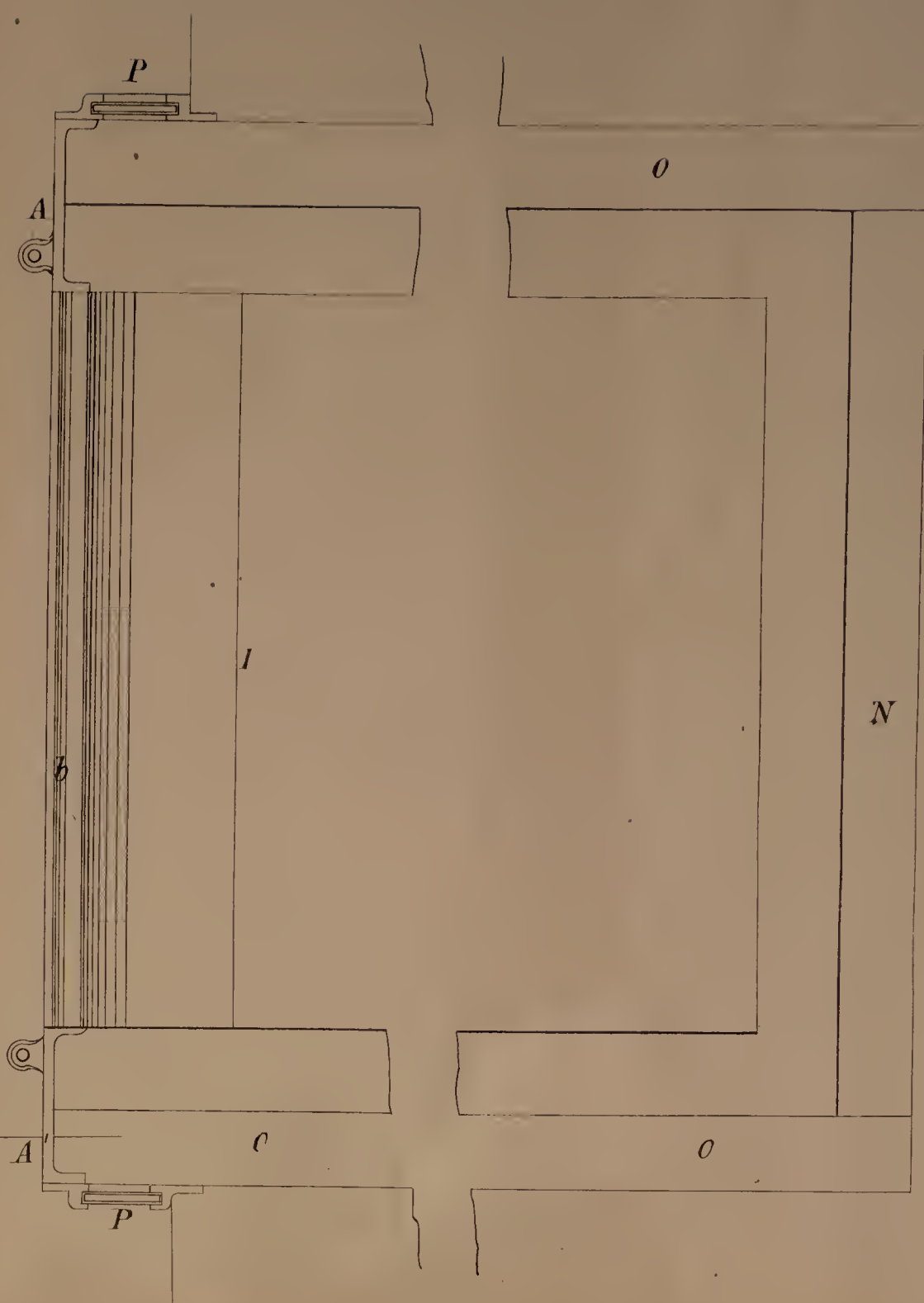
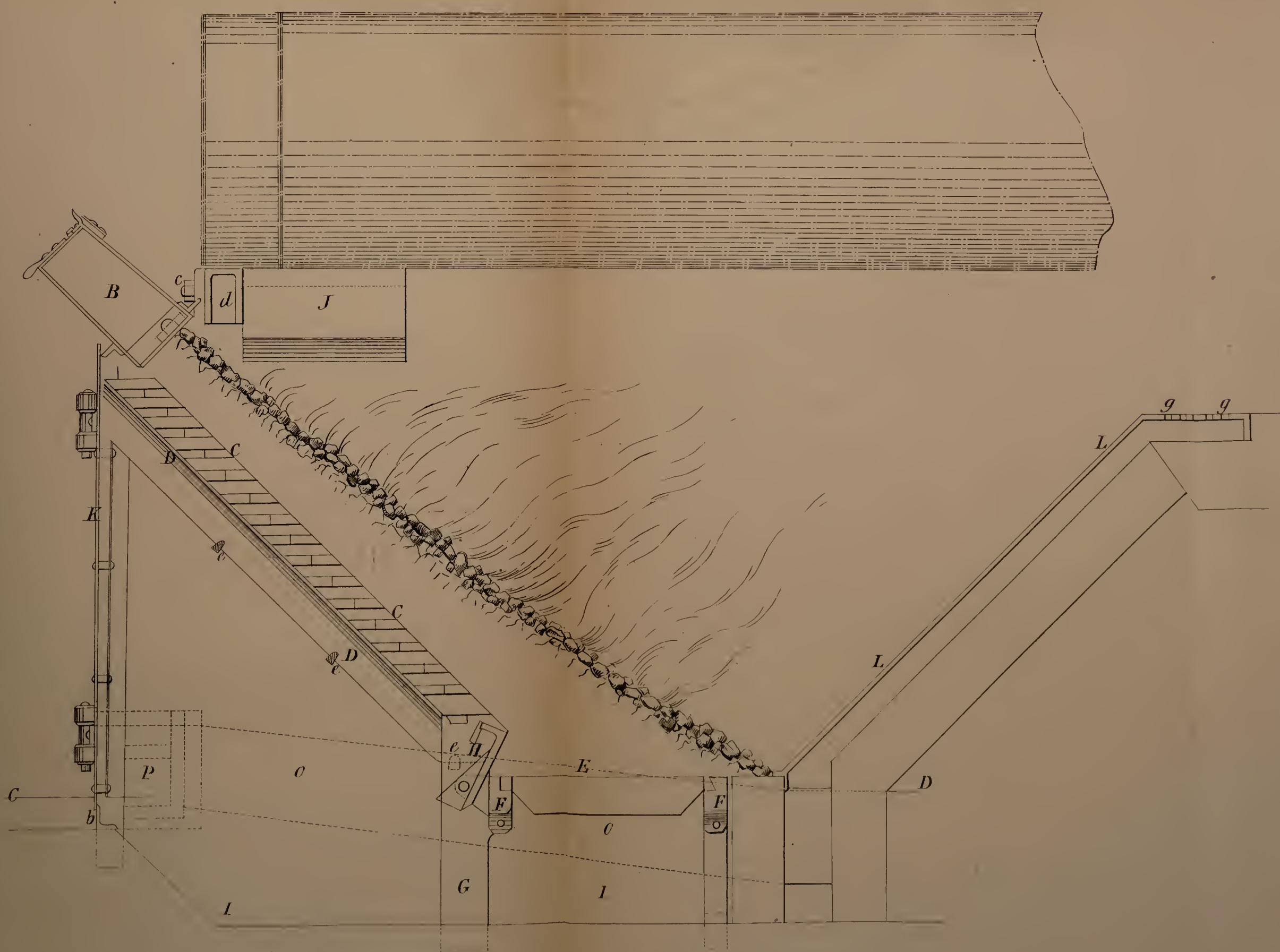


FIG. 2.



The filed drawing is partly colored.

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